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QUOTATION

Address: Lawrence Berkley National Labs

Date: May 21 2008

Quotation No: 080521 - QI16681

Attention: Steve Virostek

Reference: Model 135 RS-232

Page 1 of 4

ITEM	QUAN.	DESCRIPTION	UNIT PRICE	TOTAL
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1	2	Model 135, Liquid Helium Level Monitor with RS-232 Interface	\$1007	\$2014
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The Model 135 is an advanced liquid helium level monitor which incorporates AMI's unique sample-and-hold design with automatic helium sensor vacuum burnout protection. The Model 135 is ideal for unattended operation in systems where it is important to monitor the helium level and minimize the liquid helium losses.

In order to minimize liquid helium loss, the Model 135 automatically energizes the liquid helium level sensor at predetermined time intervals and monitors the normal (resistive) zone as it progresses from the top of the sensor toward the liquid surface. As soon as the normal zone reaches the liquid surface the level reading is saved, and the current in the sensor is turned off until the next sample interval occurs. An LED sensor current indicator is illuminated during each sample. Sample intervals are user programmable from the front panel and can be set between "0.0" (continuous reading) to "600.0" minutes or hours. A manual update switch provided on the front panel can also be set for continuous readings during a helium transfer period or just a quick reading update.

The Model 135 provides automatic helium sensor vacuum burnout protection. A sensor energized in a vacuum environment will self-heat to the point of burnout within seconds. AMI's innovative microprocessor-based circuitry detects incipient sensor burnout and de-energizes the sensor before damage can occur.

The Model 135 is equipped with a 4-digit LED digital display, which provides liquid helium level indication in inches, centimeters, or percent as selected by a front panel switch. Front panel sensor calibration allows the user to calibrate the instrument quickly and easily for any length sensor. Calibration can be performed in either inches or centimeters of sensor active length with automatic reading crossover between inches, centimeters, and percent.

The Model 135 provides "High" and "Low" alarm set points which activate front panel LED warning indicators and rear panel relay outputs in the event of an overflow or liquid loss condition. The "Low" level alarm also energizes an audible warning, which is silenced from the front panel. "High" and "Low" set points are programmable from 0 to 100 percent of sensor active length.

Microprocessor-based electronics provide 0.1% readout accuracy. Nonvolatile, read only memory maintains instrument calibration without battery backup. Watchdog timer circuitry and low line voltage (brownout) detector prevent microprocessor lock-up and provide fail-safe operation.

The Model 135 provides as standard a IEC-320 power inlet module with built in input voltage selector, dual line fusing and integral RFI line filter. The RFI line filter prevents external radio frequencies (RF) from disrupting the function of the Model 135 while also preventing any internal RF from escaping the instrument. The RFI line filter is important for NMR environments.



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The Model 135 has the following specifications:

1. Input power..... 100-200, or 200-240VAC, 50-60 Hz
2. Sensor current..... 75 mA (different for 135OX or 135-2K)
3. Linearity 0.1%
4. Accuracy..... 0.1%
5. Dimensions 3.8" H x 8.4" W x 10.75" D
6. Weight 4.3 Lbs.
7. High and low alarms..... Adjustable (0-100%)
8. Alarm relay contact ratings..... 10 VA at 0.5 A max. current, non-inductive
(normally open)
9. Regulatory CE approved
10. Max. active sensor length 80 inches typical
60 inches for 100 VAC input units
40 inches for 135OX units

2	4	Model 135, Liquid Helium Level Monitor with RS-232 Interface	\$1007	\$4028
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In order to minimize liquid helium loss, the Model 135 automatically energizes the liquid helium level sensor at predetermined time intervals and monitors the normal (resistive) zone as it progresses from the top of the sensor toward the liquid surface. As soon as the normal zone reaches the liquid surface the level reading is saved, and the current in the sensor is turned off until the next sample interval occurs. An LED sensor current indicator is illuminated during each sample. Sample intervals are user programmable from the front panel and can be set between "0.0" (continuous reading) to "600.0" minutes or hours. A manual update switch provided on the front panel can also be set for continuous readings during a helium transfer period or just a quick reading update.

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The Model 135 provides "High" and "Low" alarm set points which activate front panel LED warning indicators and rear panel relay outputs in the event of an overfill or liquid loss condition. The "Low" level alarm also



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Microprocessor-based electronics provide 0.1% readout accuracy. Nonvolatile, read only memory maintains instrument calibration without battery backup. Watchdog timer circuitry and low line voltage (brownout) detector prevent microprocessor lock-up and provide fail-safe operation.

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9. Regulatory CE approved
10. Max. active sensor length 80 inches typical
60 inches for 100 VAC input units
40 inches for 135OX units

Warranty: American Magnetics warrants its products to conform to the specifications described in its quotation for a period of fifteen months from the date of shipment. AMI makes no other warranty of any kind, expressed or implied. In the event of failure occurring during normal use, AMI, at its option, will repair or replace all products or components that fail under warranty and such repair or replacement shall constitute a fulfillment of all AMI liabilities with respect to its products. Since, however, AMI does not have control over the installation conditions or the use to which its products are put, no warranty can be made of fitness for a particular purpose, and AMI cannot be liable for special or consequential damages. All repairs are F.O.B. Oak Ridge, Tennessee, USA. If the repairs are covered under this warranty then standard shipping for return to the customer is paid for by AMI within the USA. Before shipping any item to AMI for repair, the customer must first obtain an RMA number from an authorized AMI representative. Do not attempt to repair or replace any items without first speaking to an authorized AMI representative. Doing so may expose the customer to hazards and will void this warranty. Customers requiring a more comprehensive warranty program may purchase additional coverage, the price of which may vary by product type.



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Ship Date: 30 Days after Receipt of Order
Terms: Net 30 Days
FOB: Oak Ridge, TN

Sincerely,

Taswan Mims - Sales Representative
AMERICAN MAGNETICS, INC.